

U.S. Patent Application No. 10/023,178
AMENDMENT F/REQUEST FOR
CONTINUED EXAMINATION

Attorney Docket No.: 3968.043

REMARKS

Review and reconsideration of the Office Action dated July 28, 2005 is respectfully requested in view of the above amendments and the following remarks.

Basically, the claims have been substantially amended to more clearly and correctly claim the invention. Support for the amendments can be found in the introductory part of the specification, as explained below.

That is, while the object of the invention is clearly stated in the introductory part of the specification, as discussed in the introduction of the present application, the terms used in the original claims lack precision and render the claims open to misinterpretation (e.g., is the flavor of the matrix taken into consideration in the headspace? where is antecedent basis for "the flavor compounds"? is the flavor of the matrix to be added to the second matrix, or is only the flavor mixture being analyzed and imitated to be added to the second matrix?). Accordingly, the claims are amended for clarity as follows from the following discussion.

It is basic to the present invention that the flavor of a food is essentially determined by the combination of

- volatile compounds, and
- largely non-volatile taste components (sweet, sour, salty, bitter).

The odor-active volatile compounds are perceived retronasally in the *Regio olfectoria*, a tissue in the inner upper part of the nose, on the odor receptors. Problems occur when attempting to translate the odor impression of one food, for example a peach or strawberry flavored sugar

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water, to a different category of food, e.g., attempting to impart to a low fat yogurt and to a whole fat yogurt the same sensory impression as experienced when tasting the peach or strawberry flavored sugar water. Strawberry and peach flavors are complex mixtures of compounds. The taste impression resulting from the addition of a standard strawberry flavor to sugar water might not be the same impression experienced when the strawberry flavor is added to the yogurt, and this due to the difference in the composition of the matrix.

The volatile compounds are released from the food during chewing in the mouth. The proportion of volatile compounds is determined by phase distribution processes within the food (Nernst distribution) and between food and gas phase in the oral cavity (Henry distribution). In addition, diffusion processes in the food play a critical role for the time course of flavor release. The distribution and diffusion constants differ for each individual flavor compound, so that the composition of the flavor in the vapor phase above the food changes with the composition and structure of the food. Thus a flavor formulation must be developed separately for each food. No methods are known to date by which the flavors can be adapted.

The present invention provides a process with which a flavor profile resulting from the application of a flavor composition to a first matrix can be imitated in another matrix. Herein it must be ensured here that the flavor composition as added to the first matrix is altered taking into consideration the composition and structure of the other matrix, so that a precise adaptation to the altered physical properties in the other matrix is achieved.

The principle of the inventive process is based on the fact that first a base having a flavor matched thereto is selected that has the desired properties. The base matrix can be an artificial model system or a customary food.

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The composition of the volatile constituents of the flavor composition added to the first matrix is then analyzed in the headspace above the base matrix.

The same flavor is then incorporated into another matrix. This matrix is also preferably a food which is to be given novel flavor properties. That is to say in the inventive process a flavor mixture is prepared in which the composition of the volatile flavor constituents in the headspace over the matrix corresponds to that of the base matrix.

The basic change to the present claims is in the clarification of terms, based on the above explanation. That is, if the method involves first adding a strawberry flavor mixture to a cheese, and the second matrix is a soft drink, the object of the invention is to impart to the soft drink the same strawberry flavor, and not strawberry-cheese flavor.

On the basis of the analytical results for the base matrix and the other matrix, the flavor compounds are adapted to the other matrix. This is necessary, since the distribution and diffusion constants are different for each individual flavor compound. The consequence is that the composition of the flavor in the vapor phase above the food changes with the composition and structure of the food. As a result the sensory properties alter with an altered structure and composition of the food. Thus, for each matrix, that is to say for each food, a flavor must be developed separately, that is to say adapted. It is not sufficient simply to introduce a flavor suitable for a defined matrix (that is to say food) into another matrix, that is to say another food.

Therefore, it is necessary according to the invention, on the basis of the comparison of the analytical results for the flavor composition in the headspace above the base matrix (first food) and above the different matrix (second food) to achieve an adaptation of the second food to imitate the flavor imparted to the first food.

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Applicants believe that the pending set of claims are novel in view of the Hornstein and Ashurst references because neither of the references taken alone or in combination teach: 1) the step of introducing a flavor mixture which has been introduced into a first matrix into a second matrix (step c); 2) comparing the two headspace analyses (steps d and e); and 3) changing (adjusting) the flavor mixture to be added to the second matrix in order that the composition in the headspace above the second food in a subsequent analysis will imitate the flavor composition in the headspace above the first food (also step e).

Claims Rejection (Formalities)

The Examiner previously rejected Claims 1-6 and 8 under 35 USC 112, first paragraph as failing to comply with the written description requirement.

The Examiner states that the Applicant does not specifically provide support for "first" and "second" and it is not clear what is encompassed by these terms.

Applicants respectfully submit that the terms as currently used are clear. A base matrix plus a flavor mixture is the basis of a first food, a different matrix plus a flavor mixture constitute a second food.

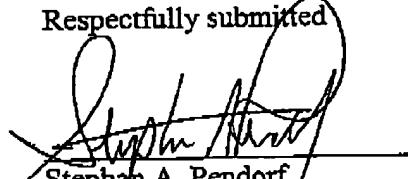
Since none of the references taken alone or in combination teach all the steps of the independent claims, Applicants respectfully request that the Examiner withdraw the rejection.

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Favorable consideration and early issuance of the Notice of Allowance are respectfully
requested.

Respectfully submitted


Stephan A. Pendorf
Registration No. 32,665
AKERMAN SENTERFITT
222 Lakeview Avenue, Suite 400
West Palm Beach FL 33401
Telephone: 561.653.5000

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CERTIFICATE OF MAILING AND AUTHORIZATION TO CHARGE

I hereby certify that the foregoing AMENEDMENT F AND REQUEST FOR
CONTINUED EXAMINATION for U.S. Application No. 10/023,178 filed December 17, 2001,
was deposited via facsimile to 571.273.8300 on January 30, 2006.

The Commissioner is hereby authorized to charge any additional fees, which may be
required at any time during the prosecution of this application, except for the issue fee, without
specific authorization, or credit any overpayment, to Deposit Account No. 50-0951.

Valee Bartels
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